

**From:** [Pappachen, Andrew](#)  
**To:** [Kraft, Nicole](#)  
**Cc:** [Vinciguerra, Amy](#); [Rich Paull](#); [Fell, Karen](#); [Zalaskus, Diane](#); [Adebowale, Andrea](#); [Gelin, Michel](#); [Awertschenko, Michael](#); [Brown, Jackie](#); [Moran, Edwin](#); [Liccese, Joseph](#)  
**Subject:** Re: Chlorine tracer study - Newark Pequannock Water Treatment Plant - 101515 - Dock No. SDWA-02-2015-8003  
**Date:** Tuesday, December 22, 2015 10:21:47 AM  
**Attachments:** [CT time to Sample House.pdf](#)

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Nicole:

The tracer study concluded that with clearwell at 603 feet (Normally we operate above 603 feet), the chlorine travel (contact) time from post chlorination point to sample house (entry point) is 39 minutes at 30 MGD flow. Based on this conclusion, we have developed a chart of chlorine travel time at various flow rates, which is attached. We currently use this chart to calculate the daily CT and calculate CT to CT required ratio. With a higher residual at sample house, we are getting the ratio at 0.9 to 1.1. Our first customer is further downstream from the sample house.

The tracer study was conducted from post chlorination point to sample house. The application point for post chlorination is the filtered water channel. From there, water enters the clear wells (two at a total capacity of 900,000 gallons). From the clear well, water enters the 72 inch pipe, travels about 7,000 feet to a cone valve chamber, where the line divides into two pipes, a 42 inch and a 48 inch, and travels another 1,650 feet to sample house.

[Andrew Pappachen](#)

Director of Public Works, Dept. of Water & Sewer Utilities

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**From:** Kraft, Nicole <Kraft.Nicole@epa.gov>

**Sent:** Monday, December 21, 2015 4:23 PM

**To:** Pappachen, Andrew

**Cc:** Vinciguerra, Amy; Rich.Paull@dep.nj.gov; Fell, Karen; Zalaskus, Diane; Adebowale, Andrea; Gelin, Michel; Awertschenko, Michael; Brown, Jackie; Moran, Edwin; Liccese, Joseph

**Subject:** RE: Chlorine tracer study - Newark Pequannock Water Treatment Plant - 101515 - Dock No. SDWA-02-2015-8003

Andrew,

Thank you for sending the tracer study report. In order for EPA and NJDEP to fully evaluate the results and the adjustments you have made to the disinfection process, we will need to see the CT calculation you are using, in whatever form it is available (electronic spreadsheet, calculating by hand, etc.). This calculation must include the values you are using for each segment of the

disinfection process, i.e. baffling factors, pipe lengths and diameters, clearwell volume. In addition, we would like to know how you will do the calculation moving forward (i.e. spreadsheet, by hand) and who on Newark WD's staff will be responsible for doing the calculation.

Thank you in advance for your cooperation.

Nicole Foley Kraft / Section Chief / U.S. EPA Region 2 / 290 Broadway, NY, NY 10007 /  
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